APPENDIX E

3-YEAR (INTERIM) AND 47-YEAR (DEFAULT) AQUATIC STRATEGY AND MITIGATION FOR TIMBER HARVEST AND ROADS

"INTERIM"
(July 24, 1998)
AQUATIC STRATEGY
for Timber Harvest & Roads
for the
PACIFIC LUMBER CO. HCP

Management Zone	**Prescription**	**Related Function/Indicator**
Channel Migration Zone [CMZ] evaluations will be conducted as part of the DNR Watershed Assessments that are planned for each basin on the ownership. All segments of Class I and Class II streams that have a Rosgen type C, D or E channel morphology will be examined to identify the current boundaries of the bankfull channel and the remaining portion of the floodplain that is likely to become part of the active channel during the 50 years covered by the Incidental Take Permit (ITP) as evidenced by past channel migration and other field indicators. Areas not evaluated in a watershed analysis must be analyzed separately by PL using a qualified fluvial geomorphologist before any THP that includes CMZ areas can be approved. Additionally NMFS, CDF&G, USFWS, and EPA or NCRWQCB will be consulted regarding any such mapping.	The following measures will apply to Channel Migration Zones: • Management within the CMZ will be allowed under two cases. The first case will be to enhance and facilitate riparian functions based upon a completed Watershed Analysis, and Riparian Management Plan as agreed upon by the permitting agencies. The second will be in cases of emergencies which could result in the loss of life or property, and in cases of emergencies as per agreement with NMFS, USFWS, and CDF&G. Loss of property is defined as a demonstrated high risk of loss of capital improvements such as bridges, roads, culverts, and houses, however it does not include loss of vegetation. • No herbicides or pesticides will be used in the CMZ. Fertilizers can be used, ground application only, for erosion control purposes. Aerial application of fertilizers is not allowed. • No sanitation salvage or exemption harvest, including emergency exemption harvest, (as defined and allowed in the California Forest Practice Rules (CFPRs)) will be allowed in the RMZ, except as per agreement with NMFS, FWS, and CDF&G in accordance with the approved HCP.	Bank Stability, LWD protection, Off-channel habitat protection, Channel migration protection, microclimate protection, pools, etc.

Management Zone		Prescription	Related Function/Indicator
CLASS I All fish bearing (or restorable) Class I watercourses as defined in the CFPRs will have a Riparian Management Zone (RMZ). The RMZ will measure 170 ft (slope distance) from the watercourse transition line as defined in the CFPRs or CMZ edge (if a CMZ is present), on each side of the watercourse. Willows will not be considered permanent vegetation for the purposes of determining the location of the watercourse transition line. The RMZ for Class I watercourses is divided into three management bands, the Restricted Harvest Band (RHB), the Limited Entry Band (LEB) and the Outer	Prescriptions that apply to the entire Class I RMZ	After each entry, PALCO will retain an additional 10 trees greater than 40 inches DBH per acre on each side of the watercourse. The trees can be counted entirely or partially within the RHB. If trees of this size are not available, the 10 largest trees in the RMZ will be retained. • No sanitation salvage or exemption harvest, including emergency exemption harvest, (as defined and allowed in the California Forest Practice Rules (CFPRs)) will be allowed in the RMZ, except as per agreement with NMFS, FWS, and CDF&G in accordance with the approved HCP. • All portions of down wood (i.e., LWD) except as defined as slash in the FPA, or within Class I outer bands as specified below will be retained. • Trees felled during current harvesting operations and THP approved roads construction are not considered down wood for purposes of retention. • Felled hazard trees or snags not associated with a THP are considered down wood and are to be retained in the general vicinity. • Trees that fall naturally onto roads, landings, or harvest units within the RMZ are considered down wood and are to be retained in the general vicinity. • All non-hazard snags will be retained, as per the snag policy in Volume II Part M. • The RMZ is an equipment exclusion zone (EEZ) for timber operations, except for roads and permitted equipment crossings. • No herbicides or pesticides will be used within the RMZ. Fertilizers will be used for ground application for erosion control only. Aerially-applied fertilizers will not be directly applied to Class I RMZs. • Full suspension yarding will be used when feasible. Full suspension is not feasible on flat ground, in other sites with limited deflection, where an adjacent landowner will not provide permission to secure a cable, or where a full suspension yarding system would jeopardize the safety of field personnel. For these conditions, yarding will be conducted in a manner that avoids ground disturbance that may deliver sediment to a watercourse to the maximum extent practicable. Where ground disturbance occurs PALCO will treat (e.g., through seeding, mulching, etc.) all sites with exposed mineral soil that can reasonably be expected to deliver sediment to a watercourse (e.g., gullies, ruts). • Trees may be felled within RMZs to provide clearance for cable yarding corridors. Such felling will be done only as needed to ensure worker safety. In such cases, to the extent feasible given site conditions and the CFPRs, trees will be felled toward the watercourses to provide LWD. Regardless, trees felled within the WLPZ for safety purposes will be retained as down wood.	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction

Management Zone		Prescription	Related Function/Indicator
Band (OB). The bands are measured 0 ft to 30 ft, 30 ft to 100 ft, and 100 ft to 170 ft from the watercourse transition line as defined in the CFPRs or CMZ edge (if a CMZ is present), respectively.		• Trees not marked for harvest which are damaged in the cable yarding corridors must be retained in place, either standing or as down wood. • There will be a maximum of 1 entry every 20 years.	
CLASS I	Prescriptions that apply to Class I Restricted Harvest Band (Edge of watercourse transition line or CMZ if present to 30')	• Harvest to enhance and facilitate riparian functions such as canopy or LWD levels, may be allowed within the RHB based upon a completed watershed analysis and Riparian Management Plan as agreed upon (both processes) by the permitting agencies. • Watershed analysis and/or PWA protocol (see section on watershed analysis) will be used to determine the priorities and road storm proofing standards to be used on all existing haul roads and stream crossings. • Road segments within the RHB must be mitigated by extending the RHB on the opposite side of the watercourse from the existing road an equivalent distance of that portion of the road prism within the RHB. In the case of RMZ road crossings, the first 50 ft of road extending inland from the watercourse transition line as defined in the CFPRs (14 CCR 895.1) is exempt from this mitigation.	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction
CLASS I	Prescriptions that apply to Class I Restricted Limited Entry Band [LEB] (30' to 100' from the watercourse transition line or channel migration zone if present)	• Only single tree selection harvest will occur within the LEB. Harvest will only occur if there is a preharvest conifer basal area of 345 sq ft per acre or greater within the LEB. • A minimum 300 sq ft post harvest conifer basal area per acre will be retained within the LEB. • Basal area measurements will be made for conformance every 200 ft lineal segment of RMZ. • No more than 40 percent of the conifer basal area may be harvested in a single entry. • Tree sizes and quantity distribution will be retained as per Table 4. If replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from higher size classes if such trees are available; provided, however, that the largest trees in the stand must be left and harvesting conducted in a manner that facilitates and expedites development of stand conditions stated in Table 4.	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction

Management Zone		Prescription	Related Function/Indicator
	PL's Late Seral Prescriptions	• Watershed analysis and/or the PWA road storm-proofing protocol will be used to determine the priorities and road storm proofing standards to be used on all roads inside the LEB. Surface area covered in roads will be included in all calculations of basal area.	
CLASS I	PL's Late Seral Prescriptions will apply to Class I Outer Band [OB] (100' to 170' from the channel migration zone [CMZ])	• Only single tree selection harvest will occur within the OB. • Harvest will only occur in the OB if there is a preharvest conifer basal area of 276 sq ft per acre or greater within the OB on each side of the watercourse. • A minimum 240 sq ft post harvest conifer basal area per acre of OB will be retained. • No more than 40 percent of the conifer basal area may be harvested in a single entry. • Tree sizes and quantity distribution will be retained as per Table 4. If replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from higher size classes if such trees are available; provided, however, that the largest trees in the stand must be left and harvesting conducted in a manner that facilitates and expedites development of stand conditions stated in Table 4. • Basal area measurements will be made for conformance no less than every 200 ft lineal segment of RMZ. • In areas with slopes <50 percent portions of downed wood (i.e., LWD) can be removed from the OB. That is, if a tree originating in any of the 3 Bands falls, portions in the RHB and LEB must be retained onsite in place, but the portions in the OB can be removed for slopes <50%. • In areas with slopes 50 percent or greater, all down wood (i.e., LWD) except as defined as slash in the FPA must be retained.	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction
CLASS II Non-fish bearing streams (Class II watercourses as defined in the CFPRs) will have a Riparian Management Zone (RMZ). The RMZ of Class II streams will measure 100 ft (slope	Prescriptions that apply to the entire Class II RMZ are as follows:	• No sanitation salvage or exemption harvest, including emergency exemption harvest, (as defined and allowed in the CFPRs) will be allowed in the RMZ, except as per agreement with NMFS, FWS, and CDF&G in accordance with the approved HCP. • All portions of down wood (i.e., LWD) will be retained, except as defined as slash in the CFPRs. • Full suspension yarding will be used when feasible. Full suspension is not feasible on flat ground, in other sites with limited deflection, where an adjacent landowner will not provide permission to secure a cable, or where a full suspension yarding system would jeopardize the safety of field personnel. For these conditions, yarding will be conducted in a manner that avoids ground disturbance that may deliver sediment to a watercourse to the maximum extent practicable. Where ground disturbance occurs PALCO will treat (e.g., through seeding, mulching, etc.) all	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction

Management Zone		Prescription	Related Function/Indicator
distance) from the watercourse transition line as defined in the CFPRs or CMZ edge (if a CMZ is present), on each side of the watercourse. Willows will not be considered permanent vegetation for the purpose of determining the location of the watercourse transition line. The RMZ is divided into two management bands, the Restricted Harvest Band (RHB), and the Selective Entry Band (SEB), which are measured from the watercourse transition line as defined in the CFPRs or CMZ (if a CMZ is present), 0 ft to 10 ft, and 10 ft to 100 ft, respectively.		• sites with exposed mineral soil that can reasonably be expected to deliver sediment to a watercourse (e.g., gullies, ruts). • Trees felled during current harvesting and approved THP roads construction are not considered down wood for purposes of retention. • Felled hazard trees not associated with a THP are considered down wood and are to be retained in the general vicinity. • Trees that fall naturally onto roads, landings or harvest units are considered down wood and are to be retained in the general vicinity. • Trees not marked for harvest may be felled within WLPZs to provide clearance for cable yarding corridors. Such felling will be done only as needed to ensure worker safety. In such cases, to the extent feasible given site conditions and the CFPRs, trees will be felled toward the watercourses to provide LWD. Regardless, trees felled within the WLPZ for safety purposes will be retained as down wood. • Trees damaged in the cable yarding corridors must be retained in place. • The RMZ is an EEZ for timber operations, except for roads and permitted equipment crossings. • No herbicides or pesticides will be used within the RMZ. Fertilizers will be used for ground application for erosion control only. Aerial fertilization will be excluded from Class II RMZs.	

Management Zone		Prescription	Related Function/Indicator
CLASS II	Prescriptions that will apply to the Class II Restricted Harvest Band [RHB] (Edge of watercourse transition line or CMZ if present to10')	• Management to enhance and facilitate riparian functions such as canopy or LWD levels may be allowed within the RHB based upon a completed watershed analysis and Riparian Management Plan as agreed upon (both processes) by the permitting agencies. • If the 10 ft line falls anywhere on a tree bole, the tree is to be retained as part of the Restricted Harvest Band. • Watershed analysis and/or the PWA road storm-proofing protocol will determine the priorities and road storm proofing standards to be used on all existing haul roads and stream crossings. • Road segments within the RHB, must be mitigated by extending the RHB on the opposite side of the watercourse as the existing road an equivalent distance of that portion of the road prism within the RHB. In the case of RMZ road crossings, the first 15 ft of road extending inland from the watercourse transaction line as defined in the CFPRs (14 CCR 895.1) is exempt from this mitigation.	LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction
CLASS II	Prescriptions that will apply to the Class II Selective Entry Band [SEB] (10-100' from the watercourse transition line or CMZ if present) PL's Late Seral Prescriptions	• Only single tree selection harvest will occur within the SEB. • Harvest will only occur in the SEB if there is a preharvest conifer basal area of 276 sq ft per acre or greater within the SEB. • A minimum 240 sq ft post harvest conifer basal area per acre of SEB will be retained. • No more than 40 percent of the conifer basal area may be harvested in a single entry. • Tree sizes and quantity distribution will be retained as per Table 4. If replacement size classes must be used to obtain the stated size distributions, the replacement size class must come from higher size classes if such trees are available; provided, however, that the largest trees in the stand must be left and harvesting conducted in a manner that facilitates and expedites development of stand conditions stated in Table 4. • Basal area measurements will be made for conformance every 200 ft lineal segment of RMZ. • There will be a maximum of 1 entry every 20 years. • Watershed analysis and/or PWA protocol will be used to determine the priorities and road storm proofing standards to be used on all roads inside the LEB. Surface area covered in roads will be included in all calculations of basal area.	Sediment Metering, LWD delivery to Class I and II watercourses.

Management Zone		Prescription	Related Function/Indicator
CLASS III	Prescriptions that apply to all Class III watercourses: Class III streams will have three management categories based on percent slope, <30%, 30% - 50%, and >50%.	• There will be no removal of any portion of down wood within the Equipment Limitation Zone/Equipment Exclusion Zone (ELZ/EEZ) except for emergencies as per agreement with NMFS, USFWS and CDFG in accordance with the approved HCP. • Trees felled during current harvesting and approved THP road construction are not considered down wood for purposes of retention. • Felled hazard trees not associated with a harvesting operation or road construction are considered down wood and are to be retained in the general vicinity. • Trees that fall naturally onto roads, landings, or harvest units are considered down wood and are to be retained in the general vicinity. • No fire will be ignited within the equipment limitation zones (ELZs) or EEZs.	
CLASS III	Prescriptions that apply to Class III streams with slopes <30 percent:	• Equipment Limitation Zone (ELZ) extending 25 ft from the stream edge, or to the drainage divide, or ridgeline of the Class III stream whichever is less. • Stabilize skid trails as per the CFPRs (Section 916.7) or as per an approved THP. • Ground based equipment in the ELZ is acceptable if less resource damage will occur by operating in the ELZ, as per an approved THP. • Where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to the preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment.	
CLASS III	Prescriptions that apply to Class III streams with slopes of 30 - 50 percent:	• ELZ extending 50 ft from the stream edge, or to the drainage divide, or ridgeline of the Class III stream whichever is less. • Stabilize skid trails as per the CFPRs (Section 916.7) or as per an approved THP. • Ground based equipment in the ELZ is acceptable if less resource damage will occur by operating in the ELZ, as per an approved THP. • Where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment.	
CLASS III	Prescriptions that apply to Class III streams with slopes >50 percent:	• EEZ (Equipment Exclusion Zone) extending 100 ft from the stream edge, or to the drainage divide, or ridgeline of the Class III stream whichever is less. • Ground based equipment in the EEZ is acceptable if less resource damage will occur by operating in the EEZ, as per an approved THP.	

Management Zone		Prescription	Related Function/Indicator
		• Where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment.	
ROAD NETWORK	Assessment of existing road network and sediment sources	PALCO will assess the road network and associated sediment sources on its lands either as part of the watershed assessment or the road storm-proofing program protocols (see below). Given the accelerated schedule being proposed for watershed analysis, most of this assessment is likely to occur within the first few years after issuance of the ITPs. However, at a minimum, the assessments must be completed as follows: • Elk River, Freshwater Creek, Lawrence Creek, and Yager Creek will be evaluated within the first decade of Plan implementation; • Van Duzen and Middle Eel rivers will be evaluated during the second decade; and • Larabee Creek, Salmon Creek, and Mattole and Bear rivers will be evaluated during the third decade. It is anticipated that all sites assigned a high or medium priority rating based on the audit of potential sediment sources will be storm-proofed over the first 30 years of Plan implementation.	Sediment Control
	Restoration of sediment delivery sites for non-THP related roads	Prior to issuance of the ITP: - Based on PWA analysis, complete recommended road storm proofing on high and medium risk sites, on at least 500 mi/decade. After issuance of the ITP: - Based on watershed analysis, complete recommended work on high and medium risk sites, on a planning watershed basis, within the prioritized hydrologic units and schedule listed above. Variations from this schedule will be conducted only upon approval of the agencies.	
	Storm-proofing or upgrading THP related roads	- All THP related roads and landings shall comply with specifications described in Handbook for Forest and Ranch Roads (Weaver 1994) • For purposes of this Plan, a road will be considered upgraded when it is well drained and shows no signs of imminent failure (e.g., as evidenced by slumping, scarps or cracks in the road fill) which would deliver sediment to a watercourse. Actions necessary to upgrade a road include the installation of ditch relief culverts and/or rolling dips where significant downcutting of the ditch is noted and removal or stabilization of unstable fill material at sites showing signs of imminent failure which could impact a watercourse. An upgraded road, as described above meets	

Management Zone		Prescription	Related Function/Indicator
		the definition used in the Plan of "complying with the specifications described in the Handbook for Forest and Ranch Roads (Weaver and Hagans 1994.)" • In each decade of HCP implementation, or until all active roads have been storm-proofed, at least 500 miles of existing roads will be improved to meet the storm-proofing standards identified in the PWA guidelines (Volume II Part N). PL will work closely with agencies to identify priority areas for this work. Additionally, unless otherwise agreed to by the agencies pursuant to prioritization discussions, storm-proofing will proceed according to the schedule by decade for hydrologic units provided in the January 7, 1998 Interagency Aquatic Strategy on page 10 thereof (see Section 3). Storm-proofing conducted as part of THPs will count towards the per-decade objective. When used in this Plan, the term storm-proofing describes a process which involves the following elements: 1. An audit of potential sediment sources along a road is conducted. A trained observer walks the road segment looking for actual or potential occurrences of erosion, slippage, mass wasting, blocked or perched culverts, or other potential sediment sources. The audits document instances of Humboldt crossings, unstable fill slopes for roads and landings, stream crossings that have high potential for culvert blockage and diversion of stream flows onto the road bed, sufficient drainage and diversion of road drainage directly into watercourses. 2. The likelihood that each identified feature will deliver sediment to watercourses is also evaluated as part of the road audit, as is the total volume of sediment that could be prevented from delivery if remedial action is taken. 3. Based on the volume of sediment saved and likelihood of delivery, sediment sites are assigned a rating of high, medium or low priority. 4. All high and medium priority sites are then scheduled for corrective action. Corrective action typically requires an excavator, bulldozer, and one or more dump trucks to dig up and replace stream crossings, install drainage structures, remove unstable fill, alter the road bed to reduce the potential for diversion of flows onto the road surface, and the installation of rolling dips and/or water bars to route water and sediment. 5. Storm-proofing is considered complete when the specified corrective actions are complete, and the roads database and GIS system are updated to show that the subject road has been storm-proofed.	
	Construction of new roads	• All new roads will be built to site-specific storm-proof specifications. (See previous storm proofing discussion.)	

Management Zone		Prescription	Related Function/Indicator
		• New roads will not be constructed in RMZs except for crossings or when feasible alternatives that would have less environmental impact are clearly not available as determined through consultation with the appropriate agencies, and will be designed to minimize the number of stream crossings and avoid mass wasting risk areas. Road layout will attempt to follow natural grades to help limit sedimentation, will be constructed on slopes primarily under 50%, and will be single lane (between 12 to 14 feet wide). In addition, bridges, culverts, or fords at stream crossings will provide for adequate passage of water during storm events. • Structures over fish-bearing streams and restorable fish-bearing streams for all new roads will be designed to provide for unimpeded fish passage. This could involve use of bottomless or baffled culverts, bridges, or other such structures. Where culverts are used they will be installed at an appropriate gradient, be sized to permit passage of a 100 year recurrence interval flood, and will contain downstream storm proofing of the stream bed to ensure that they are passable, and to prevent culvert "perching." Fish passage will be ensured by adhering to guidelines for culvert installation by NMFS, or by agency review of alternate installation measures. • Road or landing construction or reconstruction shall comply with applicable state and federal laws and shall not occur during periods of measurable precipitation (excluding fog drizzle or drip) and shall not resume thereafter until and unless soil moisture conditions are not in excess of that which occurs from normal road watering or light rainfall such that the construction or reconstruction activities will result in the loss of soil materials in amounts that will cause a visible increase in the turbidity in a Class I, II, or III watercourse, or in any drainage facility or road surface that drains directly to a Class I, II, or III watercourse (not applicable to standing water that is not draining directly to a watercourse). During each winter period (which for these purposes shall be between November first of each year and April first of the following year) no more than 2.5 miles of new road construction and 5 miles of reconstruction or storm-proofing shall occur on the Plan Area unless such additional work is approved after consultation with NMFS, USFWS, and CDFG. PALCO and the agencies shall reevaluate these winter mileage limitations during the first three years of plan implementation to determine their effectiveness. If modifications are deemed appropriate, PALCO and the agencies shall meet and agree on any necessary changes.	

Management Zone		Prescription	Related Function/Indicator
	Maintenance and Use of existing roads	Truck hauling, road grading, road rocking, or other non-emergency road use activities shall comply with applicable federal and state laws and shall cease when the activities result in a visible increase in the turbidity in a Class I, II, or III watercourse, or in any drainage facility or road surface that drains directly to a Class I, II, or III watercourse (not applicable to standing water that is not draining directly to a watercourse). Once these activities have ceased due to the foregoing conditions, these activities shall not resume until and unless soil moisture conditions are not in excess of that which occurs from normal road watering or light rainfall such that use will result in the loss of surface materials from the road in amounts that will cause a visible increase in the turbidity in a Class I, II, or III watercourse, or in any drainage facility or road surface that drains directly to a Class I, II, or III watercourse (not applicable to standing water that is not draining directly to a watercourse).	
	Monitoring Road Network	1. All open (i.e., non-abandoned) roads will be inspected at least yearly, 2. Roads will be inspected during the winter period incidental to normal operations and note all occurrences of road slippage, erosion or impending mass failure, blocked culverts, and failures or erosion control measures. 3. Any maintenance needs identified by inspections will be performed by the end of the field season following the inspection.	
HILLSLOPE MANAGE-MENT	Mass Wasting Extreme, Very High and High Mass Wasting Potential Zones (including Inner Gorges, Headwall Swales & Unstable Areas)	The Hillslope Management-Mass Wasting process applies to all portions of PL's ownership, including inside the RMZs. The prescriptions in the RMZs for mass wasting will not be less restrictive than the riparian prescriptions developed as part of the interim or default strategies or through watershed analysis as appropriate and applicable to this Plan. PL will not harvest or construct new roads in portions of its ownership with an "extreme" mass wasting potential, in inner gorges, headwall swales, or unstable areas without a geologist's report recommending alternative prescriptions that are approved by CDF. The professional registered PL geologist shall assess the influence of the proposed operation on the risk of hillslope failure. In areas where the potential for mass wasting is rated as "very high" or "high," PL will not operate heavy equipment off of existing roads or construct new roads, without a geologist's report recommending alternative prescriptions that are approved by CDF. The geologist's written report must accompany the THP when submitted for review. For portions of the ownership lacking geology and soils maps necessary to make a determination of risk, PL is responsible for providing site specific risk ratings based on review by a geologist. In most cases such determinations will be done as part of the THP approval process.	

Management Zone		Prescription	Related Function/Indicator
		NMFS, CDFG and EPA or Regional Water Quality Control Board shall be notified of all THPs that are being submitted on areas of extreme, very high and high mass wasting potential in addition to inner gorges, headwall swales, and unstable areas, if the proposed operation goes beyond the default prescriptions. A registered geologist shall assess the influence of the proposed operation on the risk of hillslope failure and prepare a written report. If required (i.e., if prescriptions other than the defaults are being proposed), the geologist's report along with the THP will be sent to NMFS, CDF&G and either EPA, or the Regional Water Control Quality Board upon THP submission. If the notified agencies have concerns regarding the harvest proposal related to the risk of mass wasting, they may communicate such concerns to the RPF and CDF within 30 days of receipt of materials from PALCO or until the close of the public comment period, whichever is longer. As mandated under the FPA, CDF, as lead agency for THP review, will consider all input and determine whether the mass wasting mitigation measures contained in the THP will avoid significant impacts.	
	Surface Erosion	PL will treat all sites of exposed mineral soils, resulting from forestry activities within watercourses protection zones that are equal to or greater than 100 sq ft, or areas less than 100 sq ft which are on slopes greater than 30 percent if the site can deliver fine sediment to watercourses. Exposed mineral soil treatments can include revegetation or other erosion control measures including, but not limited to, seeding and mulching. Watercourse crossings will also be treated to avoid or minimize sediment delivery, using watershed analysis and/or road storm proofing protocols and road armoring standards to be used on all such crossings. Cable corridors (cable roads) that divert or carry water away from natural drainage patterns or channelize run-off that reaches watercourses will have waterbreaks installed at intervals as per the CFPRs (14 CCR 914.6).	
BURNING		PL will continue to manage prescribed burns (including brush piling, fire breaks, ignition techniques, prescriptions for environmental conditions permitting ignition, etc.) to minimize adverse effects. Mitigation may be required for fire management, including suppression and rehabilitation efforts, if PL or its agents are found in violation of, or out of compliance with, their burning permit. Additional prescribed burning practices may be identified during the watershed assessment process.	Sediment Control and slope stability

Attachment #1

Table 4. Tree size and quantity necessary to meet two different residual basal area requirements.

Residual Basal Area Requirement	DBH Class	Basal Area Percent	# of Trees Per Acre*
300 sq ft/acre	6 to 12”	5%	34
	12 to 18”	10%	24
	18 to 24”	15%	19
	24 to 30”	15%	11
	30 to 36”	15%	8
	36 to 42”	20%	7
	42 to 48”	20%	5
	Over 48”	0%	0
just right 240 sq ft/acre	4 to 8”	3%	37
	8 to 12”	4%	18
	12 to 16”	8%	18
	60 to 20”	10%	14
	20 to 24”	12%	11
	24 to 28”	12%	9
	28 to 32”	15%	7
	32 to 36”	18%	7
lvl12	36 to 40”	18%	5
	Over 40”	0%	0

* Retention requirements are based on basal area not tree number. Number of trees/acre provided for information purposes only.

Attachment #2 – Definitions of Inner Gorge, Headwall Swales & Unstable Areas

Inner gorge, as used here, is defined as that area of the watercourse bank situated immediately adjacent to the watercourse channel, having a sideslope of 65% or greater, and extending from the edge of the channel upslope until the slope becomes less than 65% or for a distance of 400 ft., (slope distance) whichever is less.

Headwall swale is defined here as a concave depression, with convergent slopes > 65 %, that is connected to a watercourse via a continuous linear depression (a linear depression interrupted by a landslide deposit is considered continuous for this definition).

Unstable areas are characterized by slide areas or by some or all of the following: hummocky topography consisting of rolling bumpy ground, frequent benches, and depressions; short, irregular surface drainages which begin and end on the slope; tension cracks and head wall scarps; slopes are irregular and may be slightly concave in upper half and convex in lower half from previous slope failure; evidence of impaired ground water movement resulting in local zones of saturation within the soil mass which is indicated at the surface by sag ponds with standing water, springs, or patches of wet ground. Some or all of the following may be present: hydrophytic vegetation prevalent; leaning, jackstrawed or split trees are common; pistol butted trees with excessive sweep may occur in areas of hummocky topography (leaning and pistol butted trees should be used as indicators of unstable areas only in the presence of other indicators).

January 7, 1998

The following are default prescriptions that will be in place for watersheds that do not have watershed analysis completed by the end of year 3 of the HCP. Prescriptions for watersheds that do have watershed analysis completed will be those developed by the watershed analysis procedure.

Management Zone		Prescription	Related Function/ Indicator
Channel Migration Zone (CMZ) - areas where a CMZ is at issue will be mapped for clarity and compliance (i.e. larger streams) - it is assumed all other areas are equivalent to the '97 CFPR permanent vegetation transition zone. * Willows are not to be considered permanent vegetation.		- No harvest - no sanitation salvage or exemption harvest (including emergency harvest exemptions), unless ... * loss of life or property [loss of property is defined as a demonstrated high risk of loss of capitol improvements (bridges, roads, culverts, houses, not including vegetation)]; * or other emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and the Implementation Agreement	Bank Stability, LWD protection, Off-channel habitat protection, Channel migration protection, microclimate protection, pools, etc.
CLASS I			
Riparian Management Zone *170' total width on each side of the watercourse * measured slope distance with special provisions for slopes over 50%. (refer to Band #3)	1) Restricted Harvest Band Edge of CMZ [0] to 30'	- Harvest to enhance and facilitate riparian functions, [only] may be allowed based upon a completed watershed analysis and riparian management plan as agreed upon (both processes) by the permitting agencies - No sanitation salvage or exemption (including emergency exemption harvest) harvest (as defined and allowed in the '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and the Implementation Agreement - EEZ - existing haul roads and stream crossings must be storm proofed	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction
* this watercourse as defined in the '97 FPR's will be further defined for clarity and consistency		- roads within Band #1 must be mitigated as follows: - extend Band #1 (Restricted Harvest Band) on the opposite side of the watercourse as the existing road an equivalent distance of the road prism (width, fill, etc.)	

	- skyline yarding only, through Band #1; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place - For areas inside the 170' RMZ that also fall in the extreme, very high or high landslide hazard zones, the Hillslope Management-Mass Wasting process applies. - a minimum prescription for these areas is that described for each specific Band #1,2 or 3, respectively.	
2) Limited Entry Band 30' to 100' - prescriptions apply to each side of the watercourse * indicates prescriptions that apply to the entire 0-100' width (i.e. Band #1 and #2)	PALCO's Late Seral, High Residual Prescription - single tree selection - minimum 345 sq ft preharvest conifer basal area per acre of Band #2 RMZ, each side - minimum 300 sq ft post harvest conifer basal area per acre of Band #2 RMZ, each side - basal area measurements will be made for conformance no less than every 200' lineal segment of RMZ as per the CFPR's 916.4(b)(2) - no more than 40% of the conifer basal area may be harvested in a single entry - tree sizes and quantity distribution retained as per HCP Appendix 14 (Aug 25, '97) [if replacement size classes must be used to obtain the stated size distributions, the replacement size class must come form the next higher class] - trees fulfilling the size and quantity distribution for 36-42" and 42-48" dbh classes shall be permanently marked; if during entry a tree of the same dbh not marked is in a location (e.g. leaning, closer to watercourse, etc.) or of condition (e.g. decadent, wolfy, etc) more desirable for LWD than the originally marked tree, the permanent marks may be moved to the more desirable tree - maximum 1 entry per 20 years - No sanitation salvage or exemption (including emergency exemptions) harvest (as defined in '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ - Roads inside Band #2 (limited entry band) must be storm proofed in addition to application of all other management prescriptions (i.e. include road width in	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction

	calculations of canopy, basal area, etc.) - skyline (full suspension) yarding only through Band #2; situations where full suspension yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place * 10 trees per acre on each side of the watercourse are to be retained greater than 40" dbh, permanently marked [can be counted entirely or partially in Band#1] * retain ALL portions of down wood (i.e. LWD/LOD) except as defined as slash in the Z'Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207 * no forest chemical use (herbicides, pesticides, and fertilizers) * retain <u>all</u> snags, as per USFWS and CDFG, for wildlife mitigation	
3) Outer Band 100' to 170' - prescriptions apply to each side of the watercourse	-PALCO's late seral prescription - single tree selection - minimum 276 sq ft pre harvest conifer basal area, per acre of RMZ, each side - minimum 240 sq. ft post harvest conifer basal area, per acre of RMZ, each side - no more than 40% of the conifer basal area may be harvested in a single entry - tree sizes and quantity retained as per Appendix 14 in the HCP (Aug 25 '97) [if replacement size classes must be used to obtain the stated size distributions, the replacement size class must come form the next higher class] - basal area measurements will be made for conformance no less than every 200' lineal segment of RMZ as per the CFPR's 916.4(b)(2) - No sanitation salvage or exemption (including emergency exemptions) harvest (as defined in '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ - <u>for slopes <50% portions of downed wood</u> (i.e.,. LWD/LOD) can be removed from Band #3 [if a tree originating in any of the 3 Bands falls, portions in	LWD recruitment, temperature, sediment filtration, soil compaction, microclimate, windthrow

		Bands #1 & 2 must be retained onsite in place, but the portions in Band #3 can be removed for slopes <50%.] - <u>for slopes 50% or greater, all down wood</u> (i.e.,. LWD/LOD) must be retained except as defined as slash in the Z'Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207 - skyline (full suspension) yarding only through Band #3; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place <u>50% slope provision:</u> For all slopes over 50% adjacent to the RMZ (slope distance to 170'), the Hillslope Management-Mass Wasting process must be implemented for a distance to the break in slope or to the distance/end point determined appropriate by the Mass Wasting Team. for these areas, the Team must provide for potential large wood recruitment to streams in the prescriptions (in addition to slope stability issues). - a minimum prescription for these areas is that described in the Class I Outer Band	
<u>CLASS II</u> Riparian Management Zone * measured slope distance distance with special provisions for slopes over 50%. <u>OPTION 1</u> * 130' total width on each side of the watercourse	1) Restricted Harvest Band Edge of CMZ <u>OPTION 1</u> <u>Redwood - Slopes 50% or greater</u> [0] - 30' <u>Douglas Fir</u> [0] - 30' First step- Pre-designate the above areas using	<u>ALL WAA's , except Humboldt - OPTION 1</u> <u>HUMBOLDT WAA's - OPTION 3</u> - monitoring, method to be agreed upon by FWS, CDFG & PALCO, must be conducted to determine if Class II protection is adequate for amphibians; information resulting from monitoring may warrant different (increase or decrease) protection of Class II streams on localized scale (e.g. WAA's) - Harvest to enhance and facilitate riparian functions, [only] may be allowed based upon a completed watershed analysis and riparian management plan as agreed upon (both processes) by the permitting agencies - No sanitation salvage or exemption (including emergency exemptions) harvest (as defined and allowed in the '97 CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction

	timber types.	- existing haul roads and stream crossings must be storm proofed	
OPTION 3 * 100' width on each side of watercourse	OPTION 3 [0] - 30' all timber types and slopes	- roads within Band #1 must be mitigated as follows: - extend Band #1 (Restricted Harvest Band) on the opposite side of the watercourse as the existing road an equivalent distance of the road prism (width, fill, etc.) - skyline yarding only, through Band #1; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place - retain ALL portions of down wood (i.e. LWD/LOD) except as defined as slash in the Z'Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207 For areas inside the 100' or 130' RMZ that also fall in the extreme, very high or high landslide hazard zones, the Hillslope Management-Mass Wasting process applies. - a minimum prescription for these areas is that described for each specific Band #1 or #2 respectively.	
	2) Selective Entry Band Option 1 [0] or 30' to 130' Option 3 30' to 100' - prescriptions apply to each side of the watercourse * indicates prescriptions that can apply to the entire width (i.e. Band #1 and	ALL WAA's, except Humboldt - OPTION 1 HUMBOLDT WAA - OPTION 3 - PALCO later seral prescription - single tree selection - minimum 276 sq ft pre harvest conifer basal area, per acre of RMZ, each side - minimum 240 sq. Ft post harvest conifer basal area, per acre of RMZ, each side - no more than 40% of the conifer basal area may be harvested in a single entry - tree sizes and quantity distribution retained as per HCP Appendix 14 (Aug 25 '97) [if replacement size classes must be used to obtain the stated size distributions, the replacement size class must come form the next higher class] - basal area measurements will be made for conformance no less than every 200' lineal segment of RMZ as per the CFPR's 916.4(b)(2) - maximum 1 entry per 20 years - No sanitation salvage or exemption (including emergency exemptions) harvest (as defined in '97	Bank Stability, LWD protection and recruitment, temperature, sediment filtration, microclimate, soil compaction

	#2)	CFPR's) except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA - EEZ - Roads inside Band #2 (limited entry band) must be storm proofed in addition to application of all other management prescriptions (i.e. include road width in calculations of canopy, basal area, etc.) - skyline (full suspension) yarding only, full suspension preferred through Band #2; situations where skyline yarding is not possible will be identified in the HCP, biological opinion and IA - trees damaged in the cable yarding corridors must be retained in place * retain ALL portions of down wood (i.e. LWD/LOD) except as defined as slash in the Z'Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207 * no forest chemical use (herbicides, pesticides, fertilizers)	
	FOR SLOPES UNDER 50% 3) Sediment Filtration Band 100'-170' or 130'-170', respectively	- EEZ - retain ALL portions of down wood (i.e. LWD/LOD) except as defined as slash in the Z'Berg-Nejedly Forest Practice Act Article 2, 4525.7 in the '97 CFPR, page 207 - no fire ignited in Band	
	FOR SLOPES OVER 50% Special Provision	<u>50% slope provision:</u> For all slopes over 50% adjacent to the RMZ (slope distance to 100 or 130, respectively), the Hillslope Management-Mass Wasting process must be implemented for a distance to the break in slope or to the distance/end point determined appropriate by the Mass Wasting Team. - for these areas, the Team must provide for potential large wood recruitment to streams in the prescriptions (in addition to slope stability issues). - a minimum prescription for these areas is that described in the Class II, Selective Entry Band (#2)	
<u>CLASS III</u>	Slope <30%	- 25' Equipment Limitation Zone (ELZ)	Sediment

and 0 Order, headwall swales, etc. * measured slope distance * this watercourse as defined in the '97 FPR's will be further defined for clarity and consistency		- No fire ignited in zone - Stabilize skid trails as per the '97 FPR's as per an approved THP in accordance with the Class I and II standard - ground based equipment in the ELZ is acceptable if less resource damage will occur by operating in the ELZ, as per an approved THP - where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment - no removal of down wood in the channel - no removal of any portion of down wood within ELZ except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA	Metering, LWD delivery to Class I and II's
	Slope 30%-50%	- 50' ELZ - No fire ignited in zone - Stabilize skid trails as per the '97 FPR's as per an approved THP in accordance with the Class I and II standard - ground based equipment in the ELZ is acceptable if less resource damage will occur by operating in the ELZ, as per an approved THP - where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment - no removal of down wood in the channel - no removal of any portion of down wood within ELZ except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA	
	Slope >50%	- 100' EEZ (Equipment Exclusion Zone) - no fire ignited in EEZ. - ground based equipment in the EEZ is acceptable if less resource damage will occur by operating in the EEZ, as per an approved THP - where the above measure applies, all tractor road watercourse crossings must be flagged on the ground prior to preharvest inspection and shown on the THP map in order to be adequately evaluated for the potential to generate sediment	

		- no removal of down wood in the channel - no removal of any portion of down wood within EEZ except for emergencies as per agreement with NMFS, FWS in accordance with the HCP, 2 biological opinions, and IA	
ROAD NETWORK	Assessment of existing road network and sediment sources	- Complete watershed analysis and road inventory according to PWA protocols on a planning watershed basis within prioritized hydrologic units and schedule listed below: Decade #1: Elk River, Freshwater Creek, Lawrence Creek, Yager Creek (including Lower, N.F., Middle, S.F.) Decade #2: Van Duzen, Middle Eel Decade #3: Larabee / Sequoia, Mattole, Salmon, Bear. - For THPs outside of priority areas, sediment source assessments must be complete on a planning watershed scale.	Sediment Control
	Restoration of sediment delivery sites for non-THP related roads	- Based on watershed analysis, complete recommended work on high and medium risk sites, on a planning watershed basis, within the prioritized hydrologic units and schedule listed above.	Sediment Control
	Storm-proofing or upgrading THP related roads	- All THP related roads and landings shall comply with specifications described in Handbook for Forest and Ranch Roads (Weaver 1994) and result in sufficient sediment reduction to offset sediment production from current projects until which time a completed watershed analysis results in the identification and completed work on high and medium risk sites, on a planning watershed basis or the watershed analysis indicates that sediment is not a problem.	
	Construction of new roads	New roads and landings shall comply, at a minimum, with specifications described in Handbook for Forest and Ranch Roads (Weaver 1994) including but not limited to the following: - Roads shall be constructed as single-lane with periodic turnouts (road width generally 12 to 14 feet). - Roads shall be constructed primarily on slopes under 50%. - Roads shall be located outside riparian management zones, except for RMZ crossings, which shall be minimized	

	- Roads shall be constructed by outsloping, or maintained with rolling dips (or ditched roads maintained by well-spaced ditch relief system)
	- Avoid construction of roads in high risk situations (e.g., inner gorges[1/], road alignments crossing unstable terrain, alignments crossing slopes greater than 50 percent, or degraded watersheds[2/]) unless potential roads and specifications are evaluated by a Certified Engineering Geologist (CEG) and submitted to the agencies with the THP for review in advance of THP pre-harvest inspection.
	- No road or landing construction or reconstruction during the winter period or any other time of the year during any of the following conditions:
	a. During periods of measurable rainfall
	b. Following any rainfall of one-quarter inch or greater, there shall be a minimum of 48 hours of no measurable rainfall prior to resumption of work activities.
	- Landowner shall be responsible for all road construction and maintenance.
Maintenance and Use of existing roads	- Other than at watercourse crossings or crossing approaches, permanent roads utilized in riparian management zones shall be treated by rocking, chip sealing or paving to help prevent loss of road surface material.
	- Roads which utilize an inside ditch shall have ditch relief culverts spaced no greater than the specifications listed in Handbook for Forest and Ranch Road (Weaver 1994).
	- When culverts are proposed for Class I fish bearing or restorable watercourses, the RPF shall be required to demonstrate that the CMP will have an adequate number of days in an average year that adequate fish passage can be expected (i.e., water depth and velocity will meet fish passage requirements). These calculations are to be based on a regional flow duration curve. An example is available from CDF for a proposed crossing in the Soquel Creek watershed located near Santa Cruz, California.
	- Roads where storm proofing is not yet complete: Road uses shall cease after precipitation is sufficient to generate overland flow off the road or capable of leaving the road if entrapped. Roads use for hauling shall not resume until 48 hours without any precipitation or until the road surface is dry[3/]
	- Roads where storm proofing has been completed: Road use shall cease when it displaces road fines in

		amounts that cause a visible increase in inboard ditches which drain directly into a Class I, II or II; or a visible increase in a Class I, II, and III streams.
	Monitoring Road Network	- All THP roads, including drainage facilities and landings, will be inspected annually for 5 years after operations as a minimum. -All roads and landings that are not being used in conjunction with THPs and other operations (e.g., hauling gravel, quarry operations and others) shall be monitored annually at least once prior to the winter period, to ensure that drainage facilities and structures are in proper condition prior to the onset of this period. Monitor these same roads and landings again at least once during the winter period, in December or January, and preferably, during or after each storm event of precipitation of 1" or greater [due to limited data, the inches of precipitation may be increased with more information]. Roads and landings that cannot be monitored must be decommissioned or abandoned within the agency time-line. -Regardless of time of year, routine corrective work on inside ditches, culvert capacity and outflow, cross drains and water bars should commence as soon as required equipment (ranging from a shovel to an excavator, materials and personnel can be brought to the sites to be treated. Non-routine work such as rocking road surfaces, replacing culverts, and stabilizing fill slopes should be completed as soon as weather permits after the site is identified (taking into account the size and extent of the work, equipment access and the prevention of further damage by bringing in equipment).
HYDRO-LOGIC MATURITY		- not an HCP issue, but needs to be addressed in the EIS/EIR
HILLSLOPE MANAGE-MENT	Mass Wasting Extreme, Very High and High Landslide Hazard Zones (including Inner Gorges)	Default: No Harvest No new roads Process: 1) Apply default prescriptions per THP unless: 2) A team of a professional geologist, forester and at least 1 agency (NMFS, FWS, EPA, DFG, CDF, or RWQCB) biologist(s) determines if alternative prescriptions are appropriate and what the prescriptions will entail. - prescriptions put forward by the team are required

		component of the THP's	
		- in the case of unresolved disagreement among the team, the California State Division of Mines and Geology will make the final determination, taking into account the concerns of the other Team members	
		- report must be submitted with THP.	
		- the area of 50, 271 acres of "no data" must be accounted for in a hazard rating prior to the final approval of the HCP	
		[Repeat of RMZ information]	
		- For mass wasting areas adjacent to Class I or II RMZ's (beyond the 170', 130' and 100', respectively), the Team must provide for potential large wood recruitment to streams in the prescriptions in addition to slope stability.	
		- a minimum prescription for these areas is that described in the Class I Outer Band and Class II Selective Entry Band	
		- For areas inside the 170', 130' or 100' RMZ that also fall in the extreme, very high or high landslide hazard zones, the Hillslope Management-Mass Wasting process applies.	
		- a minimum prescription for these areas is that described for each specific Band #1, 2 or 3, respectively.	
	Surface Erosion	- treat all sites of exposed mineral soils, caused by forestry activities, within RMZ's, EEZ's, and ELZ's that are equal to or greater than 100 sq ft.	
		- treat all sites less than 100 sq ft of exposed mineral soils in RMZ's, EEZ's, and ELZ's that are on hillslopes greater than 30% if the site can deliver fine sediment to the watercourse.	
		- treatments can include revegetation or other erosion control measures including but not limited to seeding and mulching	
		- watercourse crossings in RMZ's, EEZ's and ELZ's shall be treated to prevent sediment delivery.	
		- cable corridors that divert or carry water away from natural drainage patterns or to channelize run-off that reaches watercourses shall have waterbreaks installed at intervals as per skid trail prescriptions by Weaver et al. (1994)	
<u>BURNING</u>		- no mitigation will be required for damage caused by	Sediment

	the actual fire, unless PALCO or its agents are faulted for the fire by CDF - mitigation may be required for fire management, including suppression and rehabilitation efforts if PALCO or its agents are faulted for the fire by CDF - BMP's need to be developed for managing prescribed burns (including brush piling, fire breaks, ignition techniques, prescriptions for environmental conditions permitting ignition, etc.)	Control and slope stability
MONITOR-ING & RESEARCH	- needs more discussion - a minimum of 1 complete station should be placed in every planning watershed - conceptually stations can be rotated through the ownership so some elements are monitored every other year and others every 5 years	
ADAPTIVE MANAGE-MENT WITH TRIGGERS	- needs to be discussed further - objectives, hypothesis, etc need to be established	

Table maintained by:
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1/ An inner gorge is defined as that area of watercourse bank situated immediately adjacent to the watercourse channel, having a side slope of generally over 65% and being situated below the first break in slope above the watercourse channel (Bedrossian 1983).

2/ Watershed condition should be evaluated according to the categories listed in Technical Rule Addendum #2.

3/ A wet road is that which the road moisture is higher than found during normal watering (dust abatement) treatments.

Source: Foster Wheeler Environmental Corporation, 1998